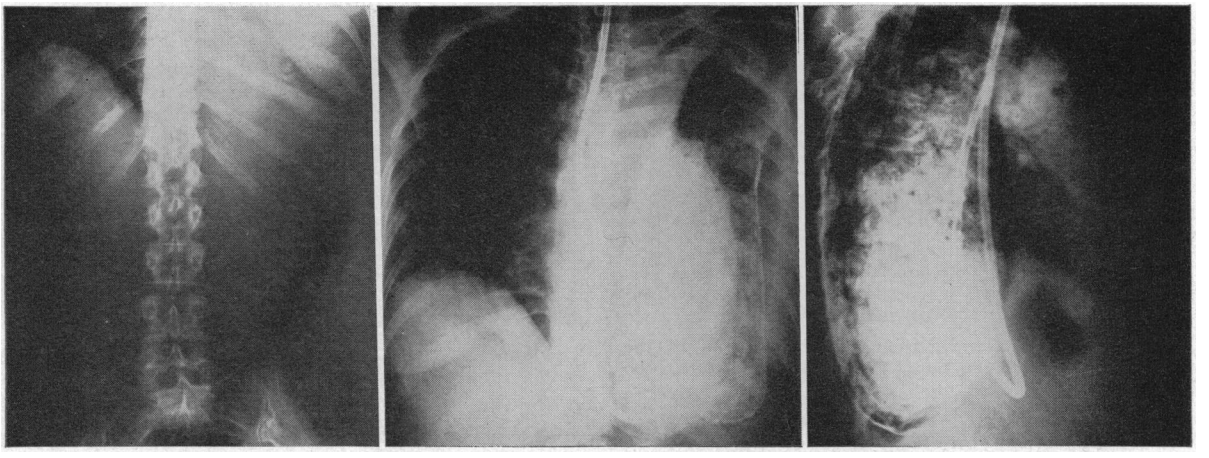

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Figure 2.—*Left*, abdomen, showing left-sided density and nondelineation of left hemidiaphragm. *Center*, opaque material in partially deflated stomach. *Right*, opaque material in stomach, lateral projection.

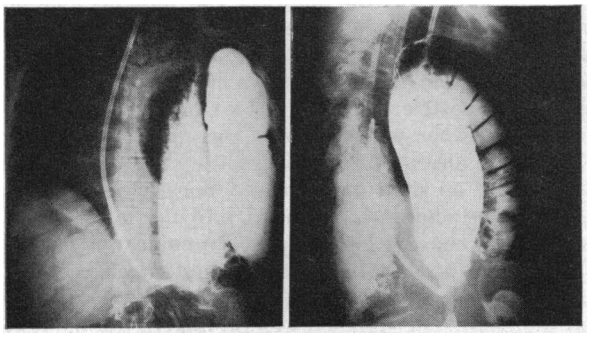

Figure 3.—Opaque material in colon, showing splenic flexure near apex of the thoracic cavity. Lateral view shows colon anterior. Tube and some barium remain in stomach posteriorly.

DISCUSSION

Recent excellent articles describe the roentgenological aspects of diaphragmatic hernia.[1, 2] So far as is known, however, the confusion between hernia and hydropneumothorax that was a factor in the case here reported has not previously been described. Yet, when the entire stomach is in the chest, this appearance is an ever-present possibility. In the present case, had a film of the abdomen been studied with the chest films, the possibility of herniation would certainly have been considered. Fortunately, no ill effects followed thoracentesis.

CONCLUSION

A case of herniation of stomach and colon into the chest, simulating hydropneumothorax, is reported. In this case, the erroneous interpretation could have been obviated by further investigation of the previous clinical history and by x-ray study of the abdomen at the time the films of the chest were studied.

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ACKNOWLEDGEMENT

The author is indebted to Dr. Blake C. Wilbur, Palo Alto, California, and Dr. Herbert A. Clattenburg, Redwood City, California, for the clinical information in this case.

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Benign Diaphragmatic Tumor

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FEW REPORTS OF TUMORS of the diaphragm have been made. Scott and Morton[8] in 1946 and Clagett and Johnson[2] in 1949 reviewed the literature and reported additional cases. The latter found reports of only 30 apparently authentic cases of primary tumor of the diaphragm, and they reported four additional cases. In 18 of the 34 cases the tumor was malignant and in 16 benign. In only seven of the cases in which the tumor was benign was it removed surgically; in the remainder it was noted at autopsy. Since the report by Clagett and Johnson, two cases of benign tumor and three of malignant tumor of the diaphragm have been reported.

The one herein reported is the nineteenth reported case of benign diaphragmatic tumor and the tenth in which the growth was surgically removed.

Diaphragmatic tumors may be asymptomatic and when symptoms do occur they are not pathognomonic. Pain in the chest is the most common symptom. The pain may be aggravated by deep breathing, and pain in the shoulder may occur. The pain may in part

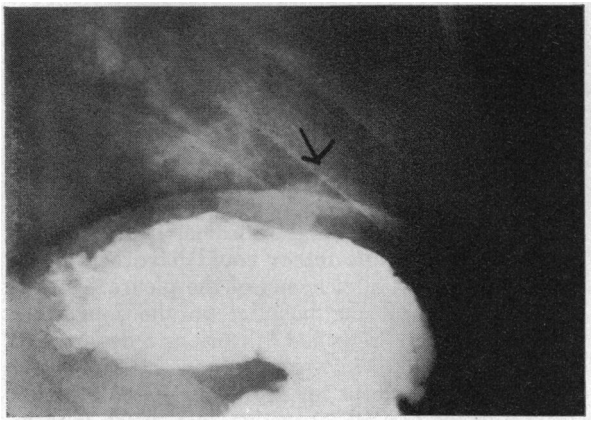

Figure 1.—Deformity of diaphragm noted incidentally in gastrointestinal study.

be referred to the upper abdomen. Pain is usually present for a considerable time before a diagnosis is made, and the patient may have consulted several physicians and be considered psychoneurotic.

An abnormality in the diaphragm may be seen in an x-ray film of the chest, but roentgen studies with pneumoperitoneum or pneumothorax usually are necessary for clear visualization of the lesion.

The treatment is thoracotomy for removal of the tumor and repair of the diaphgram.

REPORT OF A CASE

A moderately obese white man 36 years of age, first examined March 24, 1953, said that for five years he had had pain of increasing severity in the left upper quadrant of the abdomen, in the lower part of the chest on the left side, in the left scapula and shoulder, and at times extending down the left arm to the wrist. The pain was made worse when he lay down and was worse at night, frequently awakening him. The patient had consulted several physicians but nothing could be found to account for the pain.

On physical examination it was noted that deep pressure in the left upper quadrant of the abdomen, as well as deep inspiration, caused pain in the left shoulder. There was tenderness in the epigastrium.

He was admitted to hospital and in x-ray films taken for study of the gastrointestinal tract a deformity in the left diaphragm was noted (Figure 1). The deformity moved with the diaphragm during respiration and the possibility of a mass involving the diaphragm was suspected.

Deformity in the outline of the left diaphragm was seen in a film of the chest also, but it was not pronounced and whether it was due to intrinsic disease in the diaphragm, a congenital defect in the musculature or a mass under the diaphgram could not be determined. In x-ray films taken after the injection of 500 cc. of air through the left abdominal wall at the level of the umbilicus, a 3 x 4 cm. ovoid, smooth-bordered shadow of increased density was

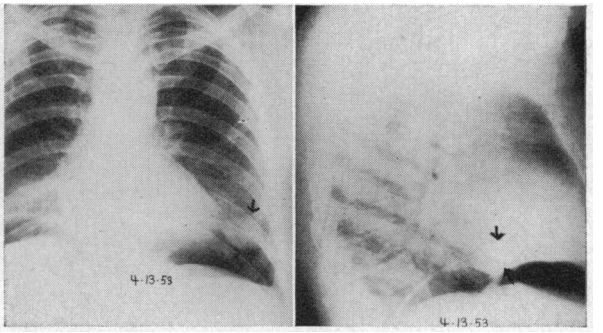

Figure 2.—Tumor of diaphragm definitively visualized after injections of air into peritoneum.

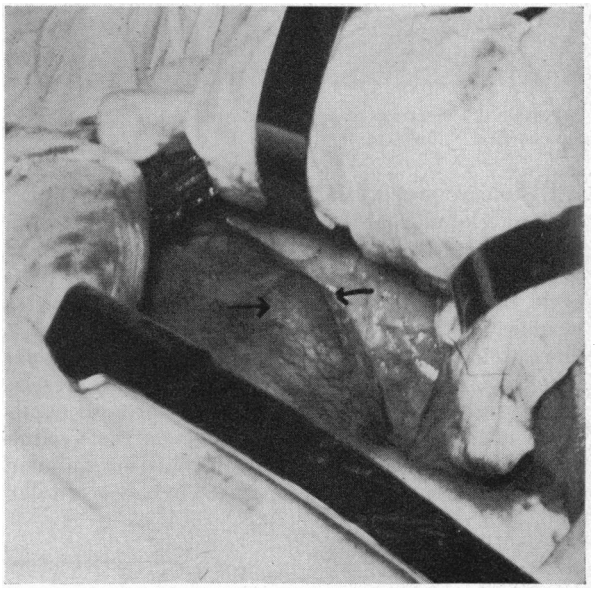

Figure 3.—Tumor viewed after incision at top of diaphragm.

noted in the left diaphragm (Figure 2). It was thought to be a benign tumor of the diaphragm.

Upon thoracotomy a 4 cm. encapsulated tumor was observed just to the right of the central tendon in the muscle of the left diaphragm (Figure 3). It was covered by diaphragmatic pleura. The diaphragm was incised directly over the tumor and after the tumor was shelled out the diaphragm was closed in two layers with interrupted mattress sutures of No. 0 black silk. The chest was closed in layers and a Foley catheter was placed for drainage for two days.

Pathologist's Report

The specimen, an oval mass weighing 17.6 gm. and measuring 3.8 x 3.2 by 2.0 cm., was covered by an intact capsule to which strands of striated muscle were adherent on one side. The cut surface was grayish white, resilient but firm and showed small embossed lobules. After examination of frozen sections the diagnosis "benign mesodermal tumor possibly of smooth muscle origin" was made.

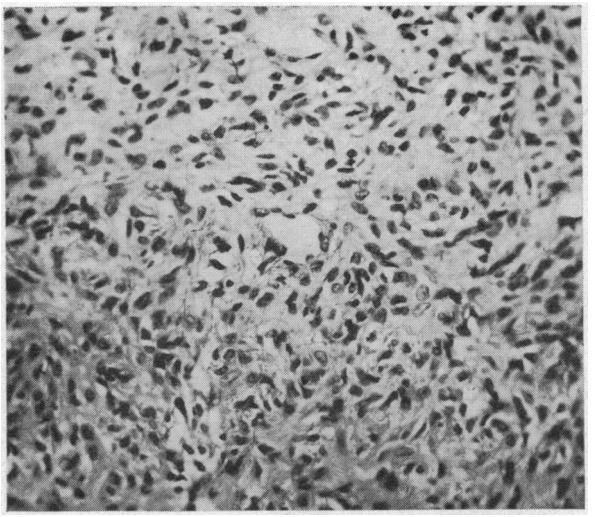

Figure 4.—Section of tumor stained with hematoxylin and eosin (× 360).

Histologic preparations (Figure 4) showed poorly defined globular areas of deeply eosinophilic hyaline material imbedded in fibroblastic tissue. Within the hyaline there were scattered vesicular and pyknotic nuclei, often lying in apparently artifactitial lacunae. At the periphery of these areas there was a more cellular tissue composed of fibroblasts arranged in small whorls surrounding capillary vessels. There were also frequent dilated and tortuous capillaries nearby. Those cells bordering on the hyaline tended to have a radial arrangement. The globular complexes described were separated by a less cellular fasciculated fibroblastic tissue still rich in capillaries. Striated muscle outside the capsule showed perivascular lymphocytic infiltration, but was otherwise within normal limits.

Studies of specially stained specimens indicated that the hyaline originated from collagen. There was no evidence of fat in frozen sections stained with Scarlet R.

The diagnosis was "angiofibroma, benign," with the comment that the tumor could have originated from submesothelial elements of the pleura.

The patient left the hospital on the fourteenth postoperative day, returned to work as a department store floor manager in two months and remained in excellent health except for a brief episode of herpes zoster just below the operative scar three months after operation.

SUMMARY

In a patient who had had localized pain high in the abdomen for five years a tumor of the diaphragm was visualized, indecisively at first, in x-ray films of the chest and then definitively after injection of air into the peritoneum.

The mass was removed and was diagnosed as benign. The patient recovered.

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Infectious Mononucleosis

Treatment with Corticotropin

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ALTHOUGH in most cases of infectious mononucleosis the manifestations and the course of the disease are fairly well standardized, the symptoms may be protean. In the past decade in particular increasing attention has been paid to the occasional atypical case. Complications such as pneumonitis,[3, 9, 15] hepatitis,[7] thrombocytopenic purpura,[1] hemolytic anemia,[10] myocarditis,[5, 15] and spontaneous rupture of the spleen[11] have been described. Involvement of the nervous system[2] has been demonstrated in reports of infectious mononucleosis associated with meningitis, encephalitis, neuronitis, optic neuritis and peripheral neuropathy. While the disease is usually benign and self-limited, seldom producing symptoms other than asthenia for more than three to six weeks and subsiding without sequelae, in a small number of cases it causes severe and prolonged illness[6] and sometimes death.[3, 12]

Since the evidence at present does not justify more than hypothetical designation of the causative agent, treatment is essentially supportive. Careful studies have shown that the course and duration of the disease are not changed by the use of penicillin,[9] aureomycin[9, 14] or chloramphenicol.[14] In the case herein reported a patient severely ill with the complications of infectious mononucleosis was treated with corticotropin (ACTH) and prompt recovery from critical illness ensued.

From the Department of Medicine, United States Public Health Service Hospital, San Francisco.

CASE REPORT

A 21-year-old white Coast Guardsman was admitted to the U. S. Public Health Service Hospital, San Francisco, October 16, 1952, with complaint of soreness in the neck. Four days previously he noted the gradual onset of dull aching in the back of the neck, extending out to the shoulders. This did not respond to local treatment with a heat lamp but became associated with generalized aching, particularly in the low back and the joints of the extremi-